

LISTING OF CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

Claims 1 through 101. (Cancelled)

102. (Previously presented) A rivet placing tool comprising:

- a head piece for admission of a rivet;
- a mechanism for seizing and/or pulling a riveting bolt;
- hauling equipment connected to said mechanism for seizing and/or pulling;
- means for measuring values occurring with the rivet placing tool;
- a mechanism for comparing said measured values with stored values; and
- a mechanism for the determination of a cause a deviation of said measured values from said stored values from a quantity of stored causes.

103. (Previously presented) A rivet placing tool comprising:

- a head piece for receiving a rivet;
- a device for gripping a riveting bolt;
- a pulling device connected to the device for gripping, said pulling device for controlling riveted joints; and
- a device for measuring tensile stress on the pulling device, said device for measuring allowing detection of a fault by comparing measured variables of said tensile stress with stored variables of said tensile stress.

104. (New) A setting tool comprising
a head piece for holding a rivet;
a gripping device for gripping and/or pulling the rivet;
a pulling apparatus connected to the gripping device so
that the rivet can be set in a surface;
a measuring device for measuring a measured value from said
pulling apparatus; and
a processor for comparing said measured value with a stored
value, said processor determining a cause of a deviation of said
measured value from said stored value from a set of stored
causes.

105. (New) The setting tool as in claim 104, wherein said
measured value comprises a value selected from the group
consisting of a tension exerted by said pulling apparatus, a
position of said pulling apparatus, an elapsed time, an angle of
the setting tool to the surface, and any combinations thereof.

106. (New) The setting tool as in claim 104, wherein said
set of stored causes comprises a cause selected from the group
consisting of a implement not placed at the correct angle fault,
an incorrect rivet used fault, a rivet damaged fault, a too wide
hole fault, a too narrow hole fault, a no rivet fault, a rivet
not gripping both parts to be connected fault, a setting tool
defect fault, and any combinations thereof.

107. (New) The setting tool as in claim 104, wherein said
measuring device comprises a strain gage or a piezoelectric
sensor.

108. (New) The setting tool as in claim 104, wherein said measuring device is capacitive sensor and said measured value is a position of said pulling apparatus.

109. (New) The setting tool as in claim 104, wherein said measuring device comprises at least three sensors arranged on said head piece and said measured value is an angle of the setting tool to the surface.

110. (New) The setting tool as in claim 104, further comprising a data storage device.

111. (New) The setting tool as in claim 110, wherein said data storage device is resettable.

112. (New) The setting tool as in claim 110, further comprising an independent power source for said data storage device.

113. (New) The setting tool as in claim 104, further comprising an independent power source for said processor.

114. (New) The setting tool as in claim 104, further comprising a counter, said counter counting a variable selected from the group consisting of a number of rivet setting cycles, a number of faults, a number of fault causes, and any combinations thereof.

115. (New) The setting tool as in claim 104, further comprising a registering device, said registering device registering a variable selected from the group consisting of a date, a time of day, and any combinations thereof.

116. (New) The setting tool as in claim 104, further comprising an external unit and a transmitting device for transmitting said measured value from said processor to said external unit.

117. (New) The setting tool as in claim 116, wherein said transmitting device comprises a device selected from the group consisting of an infrared transmitter, an ultrasound transmitter, a radio signal transmitter, and an optical conductor.

118. (New) The setting tool as in claim 116, wherein said external unit comprises a computing unit.

119. (New) The setting tool as in claim 116, wherein said external unit comprises a mobile radio terminal.

120. (New) The setting tool as in claim 104, wherein said processor is adapted to switch off the setting tool in response to said cause.

121. (New) The setting tool as in claim 104, wherein said processor is connectable to a local network.

122. (New) The setting tool as in claims 104, wherein said pulling apparatus comprises a draw spindle and said gripping device comprises a set of clamping jaws for clamping the rivet.

123. (New) The setting tool as in claim 104, wherein said pulling apparatus is operated by a driving device selected from the group consisting of an electrical drive, a hydraulic drive, a pneumatic drive, and any combinations thereof.

124. (New) The setting tool as in claim 104, further comprising a test cycle for testing the setting tool.

125. (New) A method for monitoring a rivet setting operation, comprising:

inserting a rivet into a setting implement having a pulling apparatus;

applying a tensile force to said rivet via said pulling apparatus;

measuring a variable associated with the rivet setting operation;

comparing said measured value to a stored value; and

determining a cause for a deviations of said measured value from said stored value from a set of stored causes.

126. (New) The method as in claim 125, wherein said measured value comprises a value selected from the group consisting of said tensile force, a position of said pulling apparatus, an elapsed time of the setting operation, an angle of said setting implement with respect to a surface on which said setting implement is placed, and any combinations thereof.

127. (New) The method as in claim 125, wherein said set of stored causes comprises a cause selected from the group consisting of a implement not placed at the correct angle fault, an incorrect rivet used fault, a rivet damaged fault, a too wide hole fault, a too narrow hole fault, a no rivet fault, a rivet not gripping both parts to be connected fault, a setting tool defect fault, and any combinations thereof.

128. (New) The method as in claim 125, further comprising counting a variable selected from the group consisting of a number of rivet setting cycles, a number of said deviations, a number of said causes, and any combinations thereof.

129. (New) The method as in claim 125, further comprising registering a variable selected from the group consisting of a date, a time of day, and any combinations thereof.

130. (New) The method as in claim 125, further comprising communicating a signal to an external unit, said signal being selected from the group consisting of said measured value, said cause, said deviation, and any combination thereof.

131. (New) The method as in claim 125, further comprising indicating said cause to an operator.

132. (New) The method as in claim 125, further comprising turning off said setting implement in response to said deviation.

133. (New) A head piece for a setting tool, comprising:
a measuring device for measuring a value occurring during a setting operation;
a comparing device for comparing said values to a stored value;
a determining device for determining a cause of a deviation of said value from said stored value from a set of stored causes.

134. (New) The head piece as in claim 133, wherein said measured value comprises a value selected from the group consisting of an elapsed time, an angle of the head piece to a surface, and any combinations thereof.

135. (New) The head piece as in claim 133, wherein said measuring device is a strain gage or a piezoelectric sensor for measuring tension.

136. (New) The head piece as in claim 133, wherein said measuring device is a capacitive sensor for measuring a pulling apparatus position.

137. (New) The head piece in claims 133, wherein said measuring device is at least three sensors for measuring an angle of the head piece.

138. (New) The head piece as in claims 133, further comprising a data storage device.

139. (New) The head piece as in claims 138, wherein said data storage device is resettable.

140. (New) The head piece as in claims 133, further comprising an independent power source for powering said comparing device and/or said determining device.

141. (New) The head piece as in claim 133, further comprising a counter for counting a variable selected from the group consisting of a number of rivet setting cycles, a number of said deviations, a number of said causes, and any combinations thereof.

142. (New) The head piece as in claim 133, further comprising a registering device for registering a variable selected from the group consisting of a date, a time of day, and any combinations thereof.

143. (New) The head piece as in claim 133, further comprising a transmitting device for transmitting said measured value to an external unit.

144. (New) The head piece as in claim 133, further comprising a switching device for switching off the head piece in response to said deviation.

145. (New) The head piece as in claim 133, further comprising a connection device for connecting to a local network.

146. (New) A rivet setting tool comprising:
a head piece for holding a rivet having a rivet pin;
a gripping device for gripping said rivet pin;
a pulling apparatus connected to said gripping device; and
at least one piezoelectric sensor for measuring a tension
exerted by said pulling apparatus on said rivet pin.

147. (New) The rivet setting tool as in claim 146, further
comprising a measuring device for measuring a position of said
pulling apparatus.

148. (New) The rivet setting tool as in claim 146, further
comprising a pressure sensor for measuring said tension.

149. (New) The rivet setting tool as in claim 148, wherein
said pressure sensor is a piezoelectric pressure sensor.

150. (New) The rivet setting tool as in claim 146, wherein
said pulling apparatus comprises a drive selected from the group
consisting of an electric drive, a hydraulic drive, a pneumatic
drive, and any combinations thereof.

151. (New) The rivet setting tool as in claim 146, further
comprising a communication device for communicating said tension
to an external unit.

152. (New) The rivet setting tool as in claim 146, wherein
said communicating device communicated said tension to said
external unit via a signal selected from the group consisting of
an infrared signal, an ultrasound signal, a radio signals, an
optical signal, and any combinations thereof.

153. (New) The rivet setting tool as in claim 146, further comprising a switching device for switching off the rivet setting tool in response to said tension.

154. (New) A method for monitoring a rivet setting operation, comprising:
gripping a rivet;
applying a tensile force to said rivet; and
obtaining at least one measured value during the application of said tensile force, said at least one measured value being caused or influenced by said tensile force.

155. (New) The method as in claim 154, wherein said at least one measured value comprises a plurality of measured values obtained at regular time intervals during the application of said tensile force.

156. (New) The method as in claims 154, further comprising comparing said least one measured value to a desired value.

157. (New) The method as in claim 156, further comprising outputting a fault message if said at least one measured value deviates from said desired value.

158. (New) A method for monitoring a rivet during a setting operation, comprising:
applying a tension the rivet;
measuring a change in length of the rivet; and
comparing said change in length to a desired value.

159. (New) The method as in claim 158, further comprising separating out the rivet if said change is outside a predefined tolerance band from said desired value.

160. (New) The method as in claim 158, further comprising marking the rivet if said change is within a predefined tolerance band from said desired value.